BIOLOGICAL RESOURCES INVENTORY REPORT
WHITEHAVEN PARKWAY, RESERVATION 357
WASHINGTON, D.C.

Prepared for:

National Park Service
Land Resources Program Center
National Capital Region
1100 Ohio Drive, SW
Washington, D.C. 20242
Contact: Joseph Cook

Prepared by:

EDAW, Inc.
601 Prince Street
Alexandria, Virginia 22314
Contact: Jonathan Childers

November 4, 2002

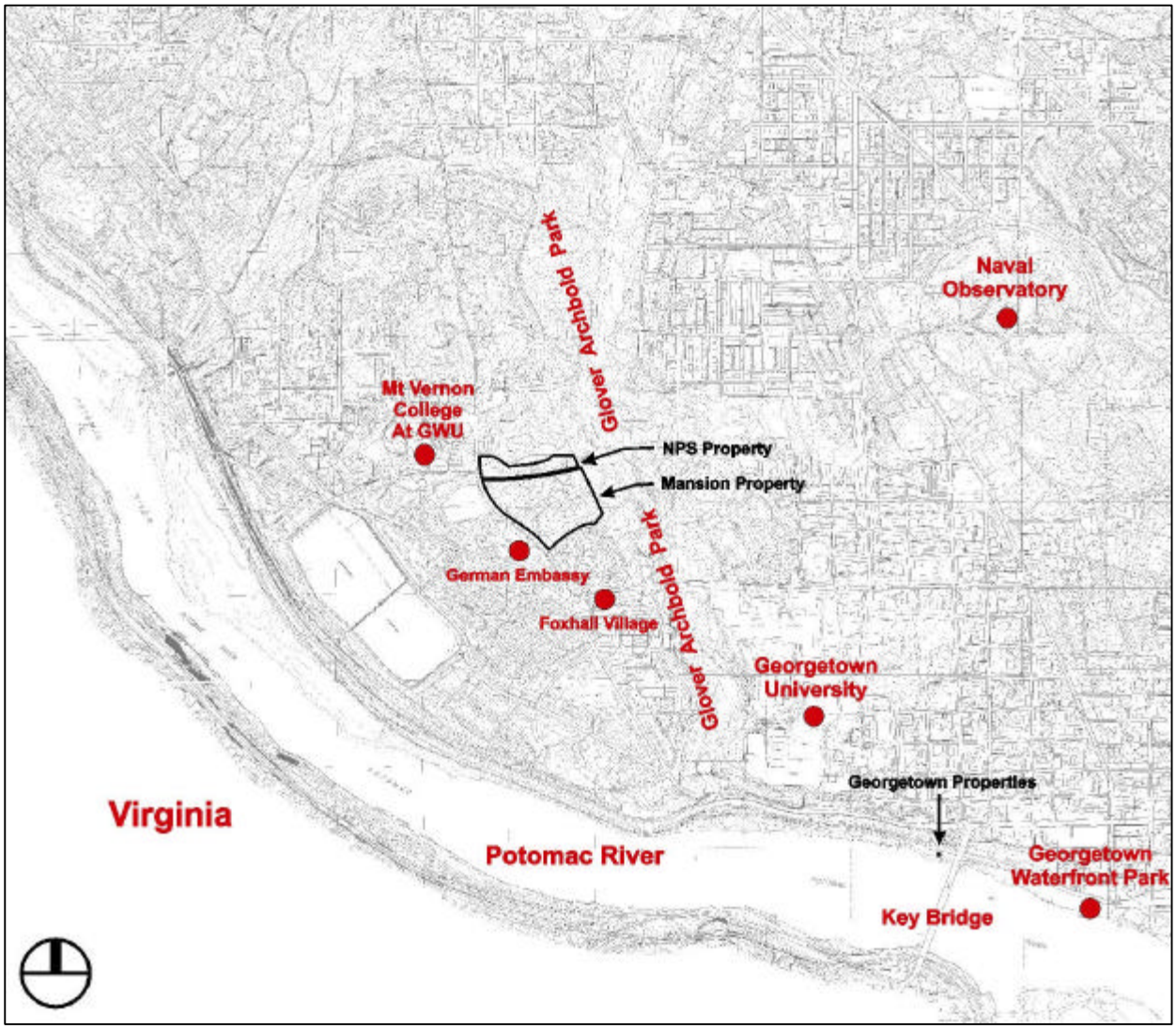
TABLE OF CONTENTS

1.0 INTRODUCTION

The National Park Service (NPS) is proposing to conduct a land transfer between NPS and the Casey Mansion Foundation (the Foundation). The parkland proposed for exchange consists of Whitehaven Parkway Reservation 357, or Lot 804, a 4-acre natural area located between Foxhall Road and Glover Archbold Park in northwest Washington, D.C. The location of lot 804, which is referred to as the NPS Property with regard to the proposed land exchange, is illustrated in Figure 1. This parkland exists as mostly open woodlands and shrubland and is traversed by a partially spring-fed stream on its northeast end that flows into Glover Archbold Park from the west. It is bordered by privately owned developed land to the north and south, by urban roads to the west, and by forest in Glover Archbold Park to the east. Should the land transfer occur, Lot 804 would be joined with a 17-acre Foundation-owned parcel to its south to facilitate construction associated with a proposed mansion for the mayor of Washington, D.C. It is proposed that a driveway be constructed through the western portion of the Lot 804 and that a guardhouse be constructed within the same vicinity. The remainder of the Lot 804 would remain undeveloped in perpetuity.

In preparation for proposed the land exchange, NPS tasked EDAW Inc. with conducting a biological inventory of Lot 804 and analyzing potential biological impacts of the proposed action. Recommended measures for protection of rare, threatened, or endangered (RTE) species and/or unusual habitats were also to be provided, as appropriate. Specifically, an on-the-ground inventory of plant species found within Lot 804 was to be conducted to identify 90 percent or more of the species likely to be present, to identify any RTE species on the subject property, and to characterize the vegetation communities throughout the property. In addition, an inventory of wildlife species throughout the property, specifically vertebrate and macroinvertebrate species found within the stream, was to be completed. Finally, sources of flows to the stream were to be mapped and the slope of the stream on the parkland was to be determined.

Figure 1 – Location of NPS Subject Property



2.0 METHODOLOGY

A review of available background information was conducted by environmental specialists employed by EDAW, Inc, an international environmental planning and design firm with a local office in Alexandria, Virginia. The review included gathering information from the NPS, the Maryland Department of Natural Resources, the Virginia Department of Game and Inland Fisheries, and the United States Fish and Wildlife Service (USFWS).

A biological survey to characterize and inventory the plant communities and wildlife on the subject property was conducted from October 26 – 28, 2002 by EDAW personnel including biologists, environmental planners, and landscape architects. Weather conditions during the field surveys were cool to cold and included mostly cloudy skies and occasional rain. Temperatures ranged from 38 to 72 degrees Fahrenheit. Vertebrate wildlife and botanical surveys consisted of walking meandering transects through the various habitats within the subject property. Wildlife species were identified by direct observation and indirect signs including tracks, scat, calls, nests, and burrows.

Vegetation communities within and adjacent to the 4-acre subject property were mapped onto a 1-inch = 100-foot scale aerial photograph (provided by the National Capital Planning Commission). Vegetation communities were classified according to the United States Geological Society – National Park Service (USGS – NPS) Vegetation Mapping Program for Rock Creek Park Vegetation Descriptions (2001), and Reschke (1990) and Smith (1991). While various annuals and herbaceous perennials are not detectable in late-October when the survey was conducted, the study area was surveyed for rare plants.

During the field survey, sources of water flow to the stream present on the property were mapped. Macroinvertebrate sampling was conducted within the stream at four separate ripples using a dip net. In addition, logs and rocks were overturned throughout the stream and organisms were collected using a dip net. Macroinvertebrates were collected into alcohol-filled sample jars and keyed to genus level at an entomology lab at the University of Maryland using dissecting microscopes. Lab work was conducted from Oct 28 – Oct 30, 2002. Macroinvertebrate identifications were confirmed by Dr. William Lamp, an aquatic entomologist at the University of Maryland. Other vertebrates and invertebrates collected were identified and released on site.

It is noted that different plant and wildlife species may be present in the spring versus those present during the autumn season. Although the survey was conducted during the autumn migratory season or dormant season for various species of wildlife and during the autumn dormant season for various species of plants, habitat suitability and likelihood of occurrence for RTE species was assessed. Plant and animal species detected during the filed survey were identified to the extent possible according to Brown and Brown (1972), Dirr (1975), Venning (1984) and Uva et al (1997) for plants, Contant and Collins (1998), Whitaker (1998) and National Geographic Society (1987) for vertebrates, and McCafferty (1983), Peckarsky et al (1990) and Thorp and Conich (2001) for macroinvertebrates.

After reviewing this Biological Resources Inventory Report, Rock Creek National Park staff revisited the subject property in search of particular species that had not been observed during the inventory, but were known to occur nearby on Rock Creek parkland. Additional species were observed during this site visit, as listed in Appendix E. The additional species observed were not RTE species.

3.0 EXISTING CONDITIONS

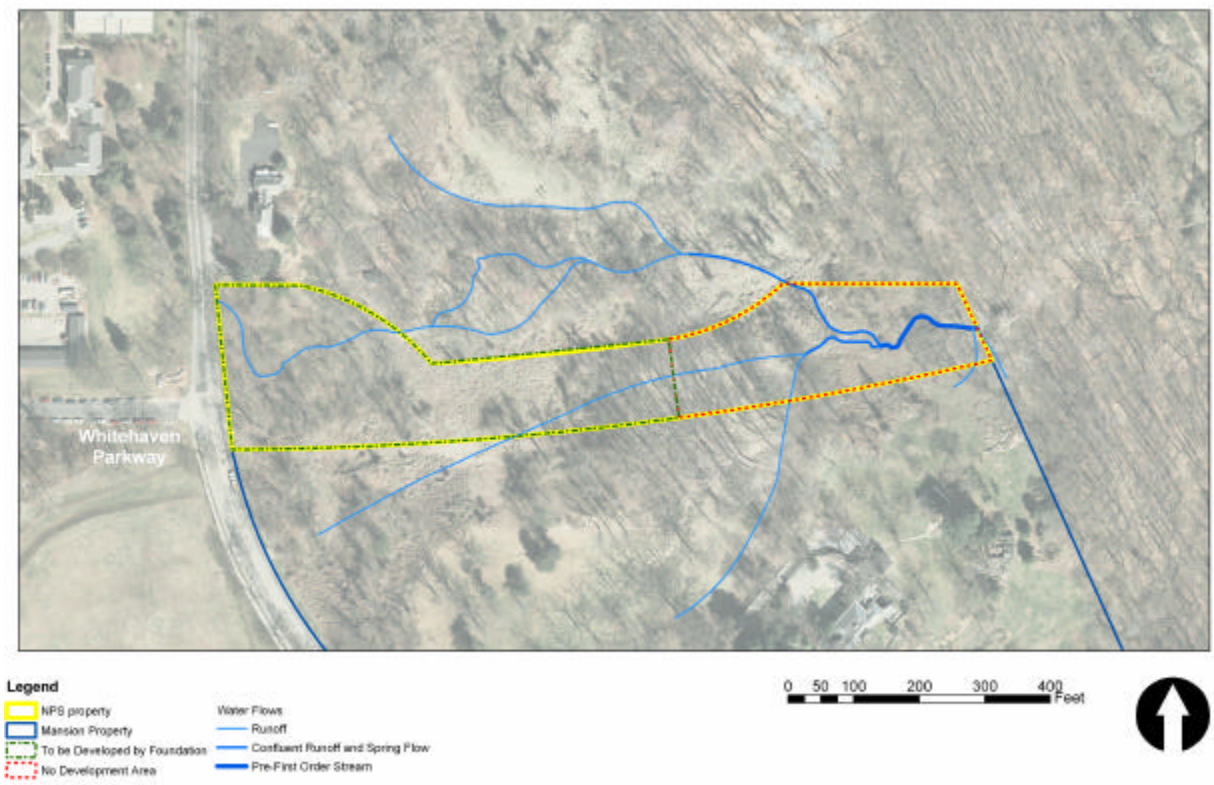
Topography and Soils

The majority of the subject property is deciduous forest and shrubland with moderate slopes descending to the east. Soils on the property are primarily Glenelg-Urban land complex with 8 to 15 percent slopes. The moderately sloping, well-drained soils of the Glenelg series (USDA 1976) include a surface layer of dark brown loam averaging a 2-inch depth and a subsurface layer of yellowish brown loam with an average of a 7-inch depth. Subsoil is about 19 inches thick and is strong brown heavy silt loam in the upper part and yellowish red silty clay loam in the lower part. The substratum is variegated loam and is found between depths of 28 and 60 inches. Permeability is moderate and the available water capacity is high. The potential for erosion is severe. At the westernmost edge of the property, soils are of the Chillum-Urban land complex with 8 to 15 percent slopes and well-drained soils (USDA 1976). The surface layer within this area consists of very dark gray silt loam about 2 inches thick and a subsurface layer of pale brown silt loam about 10 inches thick. The subsoil layer is brown heavy silt loam and yellowish red silty clay loam. The substratum is strong heavy brown very gravelly sandy loam. A small portion of the southern edge of the property falls within a Manor-Urban land complex with 15 to 40 percent slopes (USDA 1976). These soils are steeply sloping and well-drained, consisting primarily of silty loam.

Stream and Stream Flows

An unnamed pre-first order tributary stream of the Potomac River runs from the northern middle of the subject property to the southeast edge of the property. The stream is partially fed by a spring occurring on privately owned land adjacent to the north. It is also partially fed by urban runoff from roads and culverts from the west and by runoff from the adjacent developed land to the southwest. While water chemistry testing was not performed, some signs of negative impacts from urban runoff were evident such as petroleum film and fertilizer runoff. The multiple sources of flow to the stream were mapped and are represented in Figure 2. The slope of the stream within the subject property is an average of 4 percent.

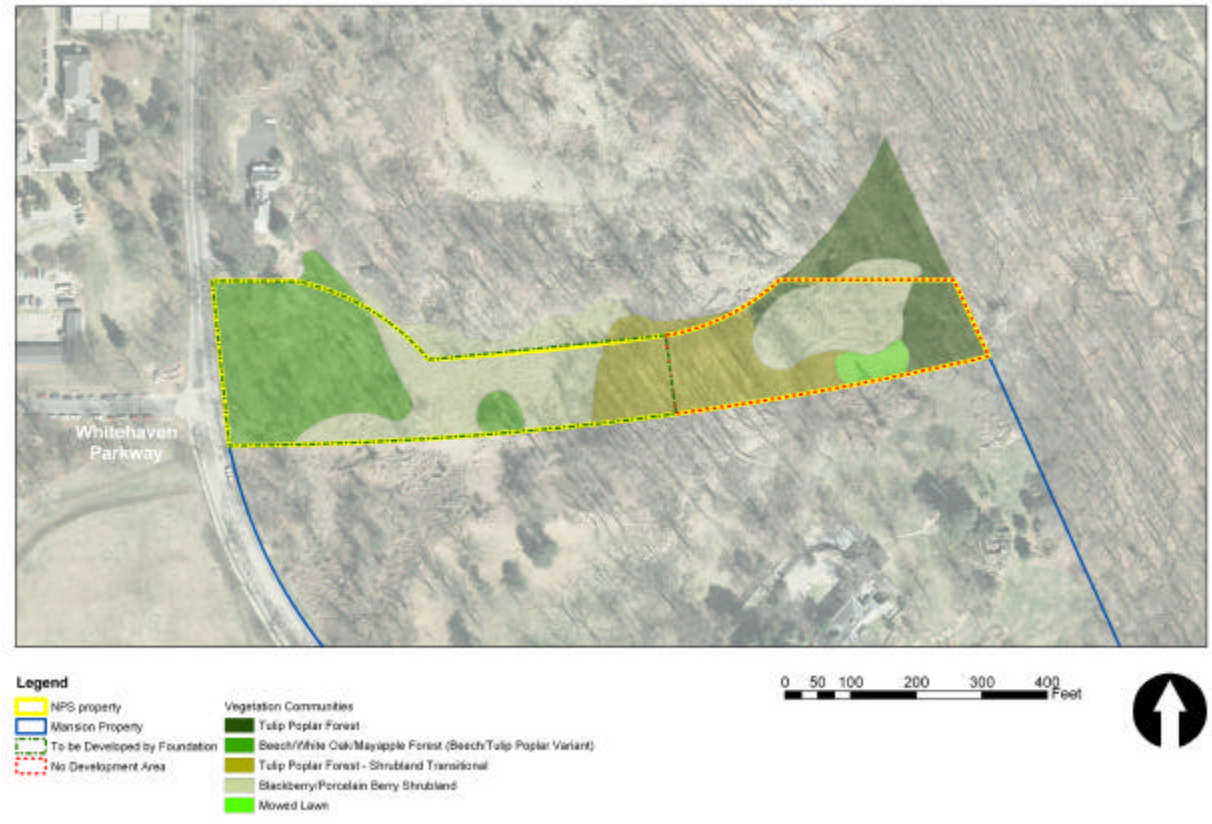
Figure 2 – Water Flows on Subject Property



Vegetation Communities

Vegetation types or communities are assemblages of plant species that usually coexist in the same area. This classification of vegetation follows that of USGS – NPS Vegetation Mapping Program (2001), Reschke (1990) and Smith (1991). The beech (*Fagus grandifolia*) – tulip poplar (*Liriodendron tulipifera*) variant of beech – white oak (*Quercus alba*) / mayapple (*Podophyllum peltatum*) forest was present on property, as well as tulip poplar forest, blackberry/porcelainberry shrubland, mowed lawn and a transitional zone of tulip poplar forest - shrubland. These plant communities are described below and are depicted in Figure 3. No RTE species were observed on property at the time of the survey. A list of plant species observed during the October 2002 survey appears in Appendix A.

Figure 3 – Vegetation Communities on Subject Property



Tulip poplar forest is found along streams on mesic mid-slope to low-slope areas (USGS – NPS 2001). This association is dominated by tulip poplar in the canopy with tulip poplar, box elder, American crabapple (*Malus coronaria*) and silky dogwood (*Cornus amomum*) in the sub-canopy. This community was found at the easternmost third of the subject property and along the northeast and southeast edges. The associated shrub layer included spicebush (*Lindera benzoin*), blackberry (*Rubus allegheniensis*), and multiflora rose (*Rosa multiflora*). Herbaceous ground-cover species included poison ivy (*Rhus radicans*), porcelain berry, and grasses (*Poaceae* spp.).

Beech – tulip poplar variant of beech – white oak / mayapple forest is found on dry to mesic soils and on gentle gradients. It is typical for acidic sandy loam soils to be underlain by semibasic or mixed basic and acidic rocks which may play an important role in the abundance of non-native species within this association (USGS – NPS 2001). This community has a canopy and sub-canopy typically dominated by tulip poplar and beech. Other dominants found on the subject property included red maple (*Acer rubra*), boxelder (*Acer negundo*), white mulberry (*Rhus alba*), red mulberry (*Morus rubra*), paulownia (*Paulownia tomentosa*), American ash (*Fraxinus americanus*), black walnut (*Juglans nigra*), and slippery elm (*Ulmus rubra*). This habitat association occurs within the western third of the property. Associated shrub layer species present included blackhaw (*Viburnum prunifolium*), Japanese honeysuckle (*Lonicera japonica*), black raspberry (*Rubus occidentalis*) and pokeweed (*Phytolacca americana*). Herbaceous ground-cover and climbing species included Virginia creeper (*Parthenocissus quinquefolia*), porcelain berry (*Ampelopsis brevipedunculata*), mile-a-minute vine (*Polygonum perfoliatum*), English ivy (*Hedera helix*) and wild ginger (*Asarum canadense*). This vegetation association is under the effect of a proliferation of ornamental vines such as mile-a-minute vine, porcelain berry, and English ivy that are killing multiple trees throughout the property and out-competing native shrubs and ground covers, thus reducing light levels to the forest floor and limiting regeneration of native shrubs and saplings.

Tulip poplar forest – blackberry / porcelain berry shrubland transitional occurs primarily within the central-eastern portion of the subject property. It exists between areas dominated by tulip polar forest association and areas dominated by blackberry/porcelain berry shrubland association. Within this transitional area, a canopy and sub-canopy exist dominated by tulip poplar, black walnut, box elder and black cherry. The shrub layer within this community is dominated by a dense cover of porcelain berry, mile-a-minute vine, winter grape (*Vitus vulpina*), black raspberry and multiflora rose similar in consistency and density to that described in the shrubland vegetation association above. This association contains a higher percentage of trees covered and weakened by the presence of exotic vines than occurs within the tulip poplar forest association.

Blackberry / porcelain berry shrubland occurs primarily as an early successional association dominated by exotic species. This community is found in openings in deciduous forest and at forest edges. At the center of the subject property the canopy and sub-canopy are sparse to absent. Species within this layer included Paulownia, tree-of-heaven (*Ailantus altissima*), and slippery elm. The shrub layer for this association was

dominated by exotic vines including porcelain berry, mile-a-minute vine, and multiflora rose. Other species within the shrub layer included black raspberry, blackberry, poison ivy, English ivy and spicebush. Trees of any age class were rare within this community and those present were weakened by the dominant presence of exotic vines.

Mowed lawn occurs as an extension of the established lawn on the Foundation-owned property adjacent to the south of the subject property. Dominant species included various grasses such as Kentucky bluegrass (*Poa pratensis*), common timothy (*Phleum pratense*), and fescues (*Festuca* spp.). This association occurs primarily along a portion of the southwestern edge of the subject property.

Wildlife

The four-acre subject property provides habitat for a variety of wildlife species, including birds, reptiles, amphibians, mammals, macroinvertebrates and other invertebrates. Wildlife data for this property is based on direct observations during field surveys. Thirty-two animal species and 13 genera of macroinvertebrates were detected on or near the property. Wildlife species detected in the deciduous forest and shrubland habitats include white-tailed deer (*Odocoileus virginianus*), Eastern gray squirrel (*Sciurus carolinensis*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), northern mockingbird (*Mimus polyglottos*), red-tailed hawk (*Buteo jamaicensis*), pileated woodpecker (*Dryocopus pileatus*), northern cardinal (*Cardinalis cardinalis*), song sparrow (*Melospiza melodia*), Carolina chickadee (*Parus carolinensis*), and American crow (*Corvus brachyrhynchos*). Wildlife species encountered within the stream include northern dusky salamander (*Desmognathus fuscus fuscus*), crayfish (*Orconectes* sp.), and multiple macroinvertebrates including Trichoptera (order), Philopotanmidae (family) *Chimarra* (genus), Diptera Nematocera Tepulidae *Prinocera*, and Odonata Calopterygidae *Calopteryx*. A complete species list from the October 2002 survey can be found in Appendix B.

Sensitive Habitats

Sensitive habitats are those that are considered rare in the region, support sensitive plant or animal species, or receive regulatory protection (e.g., wetlands as defined by the U.S. Army Corps of Engineers [Corps]).

The waterway of the stream that runs through the subject property is considered a sensitive habitat along with its surrounding wetland habitat. On the property, characteristic wetland plant species were not evident. This is most likely because of the relatively steep slopes of the streambanks. While the surrounding deciduous forest reflects the presence of moist soils, there is no marked difference between vegetation directly adjacent to the stream and vegetation further away from the stream within the same habitat association. Adjacent to the subject property, multiple wetland plant species are evident near the stream including cattails (*Typha angustifolia*) and sedges (*Cyperus* sp.).

Sensitive Plants

Sensitive plants are those that are listed by the U.S. Fish and Wildlife Service (USFWS), Maryland, or Virginia as endangered, threatened, or sensitive (S1-S4 for state lists). No sensitive plant species were detected during the October 2002 field survey. Currently no data exists for historical recorded occurrences of sensitive plant species within the subject property. Focused surveys for rare plants should be conducted during the appropriate blooming periods for these species.

Sensitive plant species that have a potential to occur on the property based on presence of suitable habitat are described in Appendix C. Based on previous recorded occurrences by the National Park Service for nearby Rock Creek Park, 15 sensitive plant species were determined to have a low to moderate potential to occur on the subject property. Two of these species are listed as Maryland state endangered: shellbark hickory (*Carya laciniosa*) and striate agrimony (*Agrimonia striata*). The others are listed by Maryland at various levels of sensitivity (see Table 1). These species include the following: golden Alexander (*Ziza aurea*), cornel-leaved aster (*Aster infirmus*), whorled coreopsis (*Coreopsis verticillata*), boneset (*Eupatorium altissimum*), sheepberry (*Viburnum lentago*), Carolina leaf-flower (*Phyllanthus caroliniensis*), chestnut (*Castanea dentate*), basil balm (*Monardia clinopodia*), showy skullcap (*Scutellaria serrata*), umbrella tree (*Magnolia tripedala*), smooth ground-cherry (*Physalis virginiana*), little lady's tresses (*Spiranthes tuberosa*) and hairy-leaved sedge (*Carex hirtifolia*). Of the 15 species listed above, none are known to occur on or adjacent to the subject property. None of these plant species are federally listed.

Sensitive Wildlife

Sensitive wildlife are those animal species that are listed as threatened or endangered, proposed for listing or candidates for listing by the USFWS, Maryland, or Virginia (S1-S4 for state sensitive species). No notable sensitive animal species were detected on the subject property during the October 2002 field survey. One genus of amphipod (*Crangonyx*) and one genus of isopod (*Caecidotea*) are currently being keyed by Dr. William Lamp of the University of Maryland to the species level. While certain species within each of the above amphipod and isopod genera are considered sensitive, multiple others are not. Thus a conclusion has yet to be made on the sensitivity of two detected macroinvertebrate genera. Currently no data exists for historical recorded occurrences of sensitive animal species within the property.

Sensitive wildlife species that have a potential to occur on the property based on the presence of suitable habitat are listed in Appendix D. There are 13 sensitive wildlife species with a potential to occur in the subject property. No federal or state endangered or threatened wildlife species were detected on the property. The Maryland "sensitive" dark-eyed junco (*Junco hyemalis*) and red-breasted nuthatch (*Sitta canadensis*) were detected. However these species are considered rare or sensitive only if detected during their spring breeding seasons. Since the birds were detected in late October, their occurrence is not notable. Potential suitable habitat for a Maryland "in need of

conservation" species, the Nashville warbler (*Vermivora ruficapilla*), was detected on the property. One federally endangered aquatic crustacean, Hay's spring amphipod (*Stygobromus hayi*) has been observed with a 6-mile radius of the property. However due to the quality and topography of the stream on the subject property, specifically that the stream contains high levels of silt and is fed by urban run-off, there is a very low potential for this species to occur on the property. Other sensitive wildlife species with a potential to occur on the property include: sharp-shinned hawk (*Accipiter striatus*), whip-poor will (*Caprimulgus vociferous*), common nighthawk (*Chordeiles minor*), purple finch (*Carpodacus purpureus*), black-throated blue warbler (*Dendroica caerulescens*), mourning warbler (*Oporornis philadelphia*), Canada warbler (*Wilsonia canadensis*), winter wren (*Troglodytes troglodytes*) and hermit thrush (*Catharus guttatus*).

4.0 RECOMMENDATIONS

No notable sensitive habitats, plant species or wildlife species were detected on the subject property. Overall, the property is overgrown by many species of exotic vines and other exotic herbaceous and woody plant species such as Paulownia and Ailanthus. The stream receives runoff from surrounding developed/urbanized lands and roadways. The water channel appears to be very silty and contains obvious signs of polluted water quality. However, the majority of the property is covered with large mature native trees and many native plant species within the sub-canopy, shrub and ground-cover layers. The property does serve as a valuable resource for multiple species of wildlife, particularly passerines and raptors including the federally protected red-tailed hawk and the state sensitive sharp-shinned hawk (*Accipiter striatus*).

The following recommendations are made to promote the continued provision of resources on the subject property and to increase the value of the property as healthy habitat for native species:

1. Impacts to native shrubs and trees should be avoided to the extent possible. Any construction activities planned for the subject property, particularly staging areas and temporary storage sites for equipment, trucks, and stockpiles should be carefully placed in previously disturbed or developed areas.
2. An exotic invasive plant mitigation program should be carried out. One similar to that conducted by the NPS throughout other parts of Rock Creek Park in the mid-1990's (Salmons 1999) would be suitable as many of the exotic species effectively eradicated within that project are the same exotics found on the subject property. Specific exotic species of concern include but are not limited to porcelain berry, mile-a-minute vine, English ivy, multiflora rose and garlic mustard.
3. Trees to be removed from the subject property should be surveyed for raptor nests before removal. Any nests present should be avoided between February 15 and September 15. In addition, due to the small size of the subject property, construction activities should be halted during the above-mentioned nesting season if nests are found on the property due to noise pollution/disturbance concerns.
4. Tire tracks caused by truck access in previously undisturbed habitats should be raked out after completion of construction to decompact soils and discourage future use of the temporary routes by off-road vehicles. This will also aid in the prevention of exotic plant species from becoming established on disturbed soils.
5. Impacts to the riparian stream area should be avoided to the extent feasible. This includes the monitoring of construction-caused runoff or material spills that could potentially further degrade the water quality of the stream. Appropriate erosion control measures should be carried out during any construction activities on the subject property or neighboring properties.

6. Focused pre-construction botanical and wildlife surveys should be conducted during the spring season before construction activities commence. In accordance with federal regulations, should any state or federally listed endangered or threatened species be encountered on site during construction activities, all such activities should indefinitely cease and the USFWS be contacted immediately.

The subject property provides little value as a biological connector due to its location. While it connects to Glover-Archbold Park on its east end and a partially wooded privately-owned lot to the north, the property's west end is adjacent to a busy 2-lane paved road. The property provides little value as a north-south corridor as development occurs in both directions. The property provides little value as an east-west corridor because it funnels wildlife into a roadway. Were more suitable pristine habitat available on the west side of Foxhall Road to the west of the subject property, it would be feasible to propose an underpass be constructed under Foxhall Road and wildlife fencing be installed along the road adjacent to the subject property to create a safe funneling effect for wildlife to access habitat on both sides of the road. However, given that there is no existing continuous expanse of native habitat to the west of the subject property, the property provides little corridor value.

5.0 APPENDICES

Appendix A

Plant species observed during October 2002 field survey

Family	Scientific Name	Subspecies	Common Name
Aceraceae	*Acer negundo*		Box Elder/Ashleaf Maple
Aceraceae	*Acer platanoides*		Norway Maple
Aceraceae	*Acer rubrum*		Red Maple
Aceraceae	*Acer saccharum*		Silver Maple
Anacardiaceae	*Rhus radicans*		Poison Ivy
Apocynaceae	*Vinca minor*		Periwinkle
Araliaceae	*Aralia nudicaulis*		Wild Sarsaparilla
Araliaceae	*Aralia racemosa*		American Spikenard
Araliaceae	*Hedera helix*		English Ivy
Aristolochiaceae	*Asarum canadense*		Wild Ginger
Asteraceae	*Ambrosia trifida*		Giant Ragweed
Asteraceae	*Bidens frondosa*		Beggar-ticks
Asteraceae	*Cirsium vulgare*		Common Thistle
Asteraceae	*Sonchus arvensis*	var. *glabrescens*	Field Sow Thistle
Asteraceae	*Taraxacum officinale*		Common Dandelion
Berberidaceae	*Podophyllum peltatum*		Mayapple
Brassicaceae	*Alliaria petiolata*		Garlic Mustard
Brassicaceae	*Barbarea vulgaris*		Yellow Rocket
Caprifoliaceae	*Lonicera japonica*		Japanese Honeysuckle
Caprifoliaceae	*Lonicera maackii*		Amur Honeysuckle
Caprifoliaceae	*Viburnum prunifolium*		Black-haw
Cornaceae	*Cornus amomum*		Silky Dogwood
Ebenaceae	*Diospyros virginiana*		Common Persimmon
Elaeagnaceae	*Elaeagnus umbellate*		Autumn Olive
Fabaceae	*Cercis canadensis*		Eastern Redbud
Fabaceae	*Robinia pseudo-acacia*		Black Locust
Fagaceae	*Fagus grandifolia*		American Beech
Juglandaceae	*Carya ovata*		Shagbark Hickory
Juglandaceae	*Juglans nigra*		Black Walnut

Lauraceae	*Lindera benzoin*		Spicebush
Magnoliaceae	*Liriodendron tulipifera*		Tulip Poplar
Moraceae	*Morus alba*		White Mulberry
Moraceae	*Morus rubra*		Red Mulberry
Oleaceae	*Fraxinus americana*		American Ash
Oxalidaceae	*Oxalis violacea*		Wood Sorrel
Phytolaccaceae	*Phytolacca americana*		Pokeweed
Poaceae	*Andropogen gerardii*		Turkeyfoot
Poaceae	*Festuca arundinacea*		Tall Fescue
Poaceae	*Festuca* spp.		Fescue species
Poaceae	*Poa pratensis*		Kentucky Bluegrass
Polygonaceae	*Polygonum perfoliatum*		Mile-A-Minute Vine
Polygonaceae	*Rumex crispus*		Curly Dock
Rosaceae	*Fragaria virginica*		Common Strawberry
Rosaceae	*Malus coronaria*		American Crabapple
Rosaceae	*Prunus serotina*		Black Cherry
Rosaceae	*Rosa multiflora*		Multiflora Rose
Rosaceae	*Rubus occidentalis*		Wild Balck Raspberry
Rosaceae	*Rubus allegheniensis*		Common Blackberry
Salicaceae	*Salix babylonica*		Weeping Willow
Scrophulariaceae	*Paulownia tomentosa*		Paulownia
Simaroubaceae	*Ailanthus altissima*		Tree-of-Heaven
Ulmaceae	*Ulmus rubra*		Slippery Elm
Vitaceae	*Ampelopsis brevipedunculata*		Porcelainberry
Vitaceae	*Parthenocissus quinquefolia*		Virginia Creeper
Vitaceae	*Vitis vulpina*		Winter Grape

Appendix B

Wildlife species observed during October 2002 field survey

	Scientific Name	**Common Name**
Birds	*Buteo jamaicensis*	Red-tailed Hawk
	Zenaida macroura	Mourning Dove
	Melanerpers erythrocephalus	Red-headed Woodpecker
	Colaptes auratus	Northern Flicker
	Picoides villosus	Hairy Woodpecker
	Dryocopus pileatus	Pileated Woodpecker
	Cyanocitta cristata	Blue Jay
	Corvus brachyrhynchos	American Crow
	Poecile carolinensis	Carolina Chickadee
	Sitta Canadensis	Red-breasted Nuthatch
	Turdus migratorius	American Robin
	Dumetella carolinensis	Gray Catbird
	Mimus polyglottos	Northern Mockingbird
	Sturnus vulgaris	European Starling
	Dendroica coronata	Yellow-rumped Warbler
	Spizella passerina	Chipping Sparrow
	Melospiza melodia	Song Sparrow
	Junco hyemalis	Dark-eyed Junco
	Cardinalis cardinalis	Northern Cardinal
	Agelaius phoeniceus	Red-winged Blackbird
	Molothrus ater	Brown-headed cowbird
	Carpodacus mexicanus	House Finch
Amphibians	*Desmognathus fuscus fuscus*	Northern Dusky Salamander
Reptiles	*Terrapene carolina Carolina*	Eastern Box Turtle
Mammals	*Odocoileus virginianus*	White-tailed Deer
	Sciurus carolinensis	Eastern Gray Squirrel
	Procyon lotor	Raccoon
	Didelphis virginiana	Virginia Opossum
	Canis familiaris	Domestic Dog
Invertebrates	*Orconectes* sp.	Crayfish
	Oligochaetes sp.	Segmented Worms
	Diplopoda sp.	Terrestrial Millipede

Macroinvertebrates	Order-Family-(Subfamily)-*Genus*	
	Trichoptera Philopotamidae *Chimarra*	
	Trichoptera Philopotamidae *Dolophilodes*	
	Trichoptera Hydropsychidae *Diplectrona*	
	Megaloptera Sialidae *Sialis*	
	Mollusca Physidae Physinae	
	Coleoptera Hydrophilidae *Tropisternis*	
	Diptera Nematocera *Tepulidae Prionocera*	
	Diptera Chironomidae *Tanypodinae Pentaneurini*	
	Diptera Simulidae *Simulium*	
	Diptera Dolichopodidae *(no known key to genus exists)*	
	Odonata Calopterygidae *Calopteryx*	
	Amphipoda Crangonyetidae *Crangonyx*	
	Isopoda Asellidae *Caecidotea*	

Appendix C

Listed and Sensitive Plant Species With Potential Occurrence on Subject Property

Species Name	USFWS Status*	MD State Status*	VA State Status*	Potential to Occur on Subject Propertye
Zizia aurea Golden Alexander		S3		This species was not observed on site. Perennial herb. Blooms May – June. Prefers moist, well-drained soils. Prefers low woodlands and moist meadows. Moderate potential to occur on site.
Aster infirmus Cornel-leaved Aster		S3		This species was not observed on site. Occurs on dry, rocky areas. Blooms August – Sept. Low potential to occur onsite due to lack of suitable habitat.
Coreopsis verticillata Whorled Coreopsis		S3		This species was not observed on site. Prefers dry, thin woods, roadsides and pine forests. Blooms June – Sept. Low potential to occur onsite due to lack of suitable habitat.
Eupatorium altissimum Boneset		S3		This species was not observed on site. Prefers dry, wooded openings. Blooms Aug – Sept. Low potential to occur on site.
Viburnum lentago Sheepberry		S1	S1	This species was not observed on site. Perennial shrub. Blooms May – July. Prefers rich, moist soils with sun or shade. Moderate potential to occur on site.

Phyllanthus caroliniensis caroliniensis Carolina Leaf-flower		S3		This species was not observed on site. Blooms June – Oct. Prefers moist open spaces, usually in sandy soil, low woods, gravelly banks. Low potential to occur on site.
Castanea dentata Chestnut		S2 S3		This species was not observed on site. Blooms June – July. Prefers hills and slopes on gravelly well-drained glacial soils. Low potential to occur on site.
Carya laciniosa Shellbark Hickory		S1 E		This species was not observed on site. Prefers deep, fertile moist soils in lowland areas. Moderate potential to occur on site.
Monarda clinopodia Basil Balm		S3		This species was not observed on site. Blooms June – Sept. Prefers wooded mountainous areas. Moderate potential to occur on site.
Scutellaria serrata Showy Skullcap		S3		This species was not observed on site. Blooms May – June. Prefers rich, moist woodlands. Moderate potential to occur on site.
Magnolia tripetala Umbrella Tree		S3		This species was not observed on site. Prefers sun to partial shade, on moist well-drained soils. Low potential to occur on site.

Agrimonia striata Striate agrimony		S1 E		This species was not observed on site. Perennial herb. Blooms July – Sept. Prefers woods and thickets. Moderate potential to occur on site.
Physalis virginiana Smooth Ground-cherry		S3		This species was not observed on site. Perennial herb. Prefers a variety of open disturbed habitats including fields, pastures and woodland clearings. Low potential to occur on site.
Spiranthes tuberosa Little Lady's Tresses		S3		This species was not observed on site. Perennial herb. Prefers moist well-drained open woods or fields. Low to moderate potential to occur on site.
Carex hirtifolia Hairy-leaved Sedge		S3	S3	This species was not observed on site. Prefers upland deciduous forest. High potential to occur on site.

** Status Codes:*

- *U.S. Fish and Wild Service (USFWS): E = Endangered; T = Threatened; PE = Proposed Endangered; SOC = Species of Concern; MNBMC = Migratory Nongame Birds of Management Concern.*
- *Maryland State Department of Natural Resources (MD DNR): E = Endangered; I = In Need of Conservation; T = Threatened; S1 = Highly State Rare; S2 = State Rare; S3 = Watch List.*
- *Virginia Department of Conservation and Recreation: LE = Listed Endangered; LT = Listed Threatened; SC = Special Concern; S1 = Extremely Rare; S2 = Very Rare; S3 = Rare to Uncommon.*

Appendix D

Listed and Sensitive Animal Species With Potential Occurrence on Subject Property

Species Name	USFWS Status*	MD State Status*	VA State Status*	Potential to Occur on Subject Property
Accipiter striatus Sharp-shinned Hawk		S1S S2B		This species was not observed on site. Prefers mixed woodlands. High potential to occur on site.
Caprimulgus vociferus Whip-poor Will		S3 S4B		This species was not observed on site. Prefers coniferous or mixed woodlands, wooded canyons. Moderate potential to occur on site.
Chordeiles minor Common Nighthawk		S3S S4B		This species was not observed on site. Prefers woodlands, suburbs, towns. High potential to occur on site.
Carpodacus purpureus Purple Finch		S3B	S1B/S5N SC	This species was not observed on site. Prefers mixed woodland borders. Moderate potential to occur on site.
Junco hyemalis Dark-eyed Junco		S2B		This species was observed on site. However it is considered sensitive or rare only during breeding season. Prefers coniferous or mixed woodlands for breeding. Low potential to occur during breeding season on site.
Dendroica caerulescens Black-throated Blue Warbler		S3S S4B		This species was not observed on site. Prefers deciduous forests. Moderate potential to occur on site.
Oporornis philadelphia Mourning Warbler		S1B	S1B/SZN SC	This species was not observed on site. Prefers dense undergrowth, thickets and moist woods. This species is only considered rare if detected during breeding season. Nests on ground. Low potential to occur on site.

Vermivora ruficapilla Nashville Warbler		S1S S2B I	S1B/SZN	This species was not observed on site. Prefers second-growth woodlands and spruce bogs. Low to moderate potential to occur on site.
Wilsonia canadensis Canada Warbler		S3B		This species was not observed on site. Prefers dense woodlands and brush. Moderate potential to occur on site.
Sitta canadensis Red-breasted Nuthatch		S1B	S2B/S4N SC	This species was observed on site. Considered rare during breeding season only. Prefers woodland habitats. Moderate potential to occur during breeding season on site.
Troglodytes troglodytes Winter Wren		S2B	S2B/S4N SC	This species was not observed on site. Considered rare during breeding season only. Prefers dense brush, especially along stream banks. Prefers to nest in coniferous forests. Low potential to occurring during breeding season on site.
Catharus guttatus Hermit Thrush		S3 S4B	S1B/S5N	This species was not observed on site. Prefers coniferous or mixed woodlands and thickets. Moderate potential for this species to occur on site.
Stygobromus hayi Hay's Spring Amphipod	E			This species was not detected on site. Prefers unpolluted spring-fed streams with low silt levels. Very low potential to occur on site.

** Status Codes*

- *U.S. Fish and Wild Service (USFWS): E = Endangered; T = Threatened; PE = Proposed Endangered; SOC = Species of Concern; MNBMC = Migratory Nongame Birds of Management Concern.*
- *Maryland State Department of Natural Resources (MD DNR): E = Endangered; I = In Need of Conservation; T = Threatened; B = Species is a migrant and the subrank refers only to the breeding status of the species in Maryland; S1 = Highly State Rare; S2 = State Rare; S3 =Watch List.*
- *Virginia Department of Conservation and Recreation: LE = Listed Endangered; LT = Listed Threatened; SC = Special Concern; S1 = Extremely Rare; S2 = Very Rare; S3 = Rare to Uncommon; SZN = Long distance migrant whose occurrences outside of the breeding season are not monitored or a species whose wintering populations are transitory and usually do not occur regularly at specific localities; SB = Refers to breeding status of the animal.*

Appendix E

Additional Species of Vegetation Identified on Subject Property on November 15, 2002 by Rock Creek National Park Staff

Species	**Common Name**
Aesculus sp.	horsechestnut
Arisaema triphyllum	jack in the pulpit
Aster divaricatus	white wood aster
Aster sp.	
Athyrium felix-femina	lady fern
Boehmeria cylindrica	false nettle
Carex sp(p).	sedge(s)
Celtis occidentalis	hackberry
Clematis ternifolia	sweet autumn clematis
Conyza Canadensis	horseweed
Dichanthelium clandestinum	deer tongue grass
Duchesnea indica	Indian strawberry
Echinochloa sp.	barnyard grass
Elephantopus carolinianus	elephant's foot
Epilobium coloratum	willow herb
Erechtites hieracifolia	Fireweed
Eupatorium rugosum	white snakeroot
Geum canadense	white avens
Ilex opaca	American holly
Juncus effuses	soft rush
Ligustrum sp.	Privet
Lycopus sp.	bugleweed
Malus sp.	crabapple
Microstegium vimineum	stiltgrass
Miscanthus sinensis	Japanese plumegrass
Muhlenbergia schreberi	nimblewill
Osmorhiza sp.	sweet cicely
Penthorum sedoides	ditch stonecrop
Pilea pumila	clearweed
Polygonum caespitosum	low smartweed
Polygonum sagittatum	arrow leaved tearthumb

Polygonum virginianum	Virginia jumpseed
Polystichum acrostichoides	christmas fern
Rubus phoenicolasius	wineberry
Sanicula Canadensis	Sanicle
Scirpus sp.	Bulrush
Senecio aureus	golden ragwort
Solidago rugosa	rough leaved goldenrod
Stellaria media	chickweed
Teucrium canadense	American germander
Vernonia noveboracensis	New York ironweed
Viburnum dilatatum	linden viburnum
Viburnum sp.	viburnum
Viola papilionacea	Common blue violet

References

Braun, E.L. 1950. Deciduous forests of eastern North America. Macmillan Publishing Company. New York, NY.

Brown, Russel G. and Melvin L. Brown. 1972. Woody Plants of Maryland. University of Maryland. Port City Press, Baltimore, Maryland.

Conant, Roger, and Joseph T. Collins. 1998. Reptiles and Amphibians of Eastern/Central North America. Houghton Mifflin Company. Boston, MA.

Dirr, Michael A. 1975. Revised 1998. Manual of Woody Landscape Plants. Fifth Edition. Stipes Publishing. Champaign, IL.

Glassberg, Jeffrey. 1999. Butterflies through Binoculars: The East. Oxford University Press. New York, NY.

McCafferty, W. Patrick. 1983. Aquatic Entomology: The Fisherman's Guide and Ecologists' Illustrated Guide to Insects and their Relatives. Jones & Bartlett Publishing.

National Geographic Society. 1987. Field Guide to the birds of North America. Third Edition. National Geographic Society. Washington D.C.

Peckarsky, Barbara L., Pierre R. Fraissinet, and Marjory A. Penton. 1990. Freshwater Macroinvertebrates of Northeastern North America. Cornell University Press. Ithaca, NY.

Peterson, Roger Tory, and Margaret McKenny. 1968. A Field Guide to Wildflowers of the Northeastern and Northcentral North America. Houghton Mifflin Company. Boston, MA.

Petrides, George A., and Janet Wehr. 1998. A Guide to the Eastern Trees. Houghton Mifflin Company. Boston, MA.

Reschke, C. 1990. Ecological communities of New York State. New York Natural Heritage Program. New York State Dept. of Environmental Conservation. Latham, NY.

Salmons, Susan. 1999. Rock Creek Park Invasive Non-Native Plant Mitigation Program Final Report. http://ww.nps.gov/rocr/natural/final.htm.

Smith, T.L. 1991. Natural ecological communities of Pennsylvania. Pennsylvania Natural Diversity Inventory-East, Pennsylvania Science Office of The Nature Conservancy. Middletown, PA.

Thorp, James H. and Alan P. Covich (eds.). 2001. Ecology and Classification of North American Freshwater Invertebrates. Second Edition. Academic Press.

United States Department of Agriculture (USDA). Soil Conservation Service. July 1976. Soil Survey of District of Columbia.

United States Geological Survey – National Park Service (USGS – NPS). November 2001. USGS – NPS Vegetation Mapping Program. Rock Creek Park Vegetation Descriptions. http://biology.usgs.gov/npsveg/rocr/descriptxt.html.

Uva, Richard H., Joseph C. Neal, and Joseph M. Ditomaso. 1997. Weeds of the Northeast. Comstock Publishing Associates. Cornell University Press. Ithaca and London.

Venning, Frank D. 1984. Wildflowers of North America. St. Martin's Press. New York, NY.

Whitaker Jr., John O. 1998. National Audubon Society Field Guide to Mammals. Alfred A. Knopf. New York, NY.